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*Theory of valuations and Monge-Ampère operators*

Valuations on convex sets are finitely additive measures on convex compact sets. Supporting functional identifies convex bodies with 1-homogeneous convex functions. Under this identification, valuations on convex bodies get identified with valuations on 1-homogeneous convex functions.

The notion of a valuation on a class of functions was introduced only relatively recently. The goal of this talk is to study relations between valuations on convex bodies and on (not necessarily 1-homogeneous) convex functions. The main tool is the real Monge-Ampère operator which allows to produce many examples of continuous valuations on convex functions, and hence on convex bodies.

If time permits I will describe similar constructions obtained using complex Monge-Ampère operator, and also their quaternionic and octonionic versions introduced by the speaker.